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ASIC

assembly language

A

ASIC n. Acronym for application-specific integrated circuit. See also gate array.

ASK n. See amplitude shift keying.

ASN n. Acronym for autonomous-system number. See autonomous system.

ASN.1 n. See Abstract Syntax Notation One.

.asp n. A file extension that identifies a Web page as an Active Server Page.

ASP n. 1. See Active Server Pages. 2. See application service provider.

aspect ratio n. In computer displays and graphics, the ratio of the width of an image or image area to its height. An aspect ratio of 2:1, for example, indicates that the image is twice as wide as it is high. The aspect ratio is an important factor in maintaining correct proportions when an image is printed, rescaled, or incorporated into another document.

ASPI n. See Advanced SCSI Programming Interface.

ASP.NET n. A set of technologies in the Microsoft .NET Framework for building Web applications and XML Web services. ASP.NET pages execute on the server and generate markup (such as HTML, WML, or XML) that is sent to a desktop or mobile browser. ASP.NET pages use a compiled, event-driven programming model that improves performance and enables the separation of application logic and user interface. ASP.NET pages and XML Web services files created using ASP.NET contain server-side (rather than client-side) logic written in Visual Basic .NET, C# .NET, or any .NET-compatible language. Web applications and XML Web services take advantage of the features of the common language runtime, such as type safety, inheritance, language interoperability, versioning, and integrated security.

ASP.NET server control n. A server-side component that encapsulates user-interface and related functionality. An ASP.NET server control derives directly or indirectly from the System.Web.UI.Control class. The superset of ASP.NET server controls includes Web server controls, HTML server controls, and mobile controls. The page syntax for an ASP.NET server control includes a `runat="server"` attribute on the control's tag. See also Web server control, HTML server control, validation server controls.

ASP.NET Web application n. An application that processes HTTP requests (Web requests) and executes on top of the ASP.NET runtime. An ASP.NET application can include ASP.NET pages, XML Web services, HTTP handlers, and HTTP modules.

ASR n. 1. See automatic system reconfiguration.

2. Acronym for Automatic Speech Recognition. Technology which allows machines to recognize and respond to human voice commands. ASR systems may be used to control a computer or to operate word processing and similar applications. Many ASR products are designed for use by users with disabilities who might have difficulty using a keyboard or mouse.

assemble vb. In programming, to convert an assembly language program to equivalent machine language instructions called object code. See also assembler, assembly language, linker, object code.

assembler n. A program that converts assembly language programs, which are understandable by humans, into executable machine language. See also assemble, assembly language, assembly listing, compiler (definition 2), machine code.

assembly n. A collection of one or more files that are versioned and deployed as a unit. An assembly is the primary building block of a .NET Framework application. All managed types and resources are contained within an assembly and are marked either as accessible only within the assembly or as accessible from code in other assemblies. Assemblies also play a key role in security. The code access security system uses information about the assembly to determine the set of permissions that code in the assembly is granted.

assembly cache n. A machine-wide code cache used for side-by-side storage of assemblies. There are two parts to the cache: the global assembly cache contains assemblies that are explicitly installed to be shared among many applications on the computer; the download cache stores code downloaded from Internet or intranet sites, isolated to the application that triggered the download so that code downloaded on behalf of one application/page does not impact other applications. See also global assembly cache.

assembly language n. A low-level programming language using abbreviations or mnemonic codes in which each statement corresponds to a single machine instruction. An assembly language is translated to machine language by the assembler and is specific to a given

COBOL

Code Red worm

C

COBOL n. Acronym for Common Business-Oriented Language. A verbose, English-like compiled programming language developed between 1959 and 1961 and still in widespread use today, especially in business applications typically run on mainframes. A COBOL program consists of an Identification Division, which specifies the name of the program and contains any other documentation the programmer wants to add; an Environment Division, which specifies the computers being used and the files used in the program for input and output; a Data Division, which describes the format of the data structures used in the program; and a Procedure Division, which contains the procedures that dictate the actions of the program. See also compiled language.

cobweb site n. A Web site that is far out of date. See also Web site.

Cocoa n. A set of object-oriented development tools and interfaces available on Mac OS X. Cocoa contains a set of frameworks, software components, and development tools used to construct applications for Mac OS X and provides programming interfaces in Java and Objective-C. Cocoa is based on NeXT's OpenStep and is integrated with Apple technologies.

CODASYL n. Acronym for Conference on Data Systems Languages. An organization founded by the U.S. Department of Defense. CODASYL is dedicated to the development of data-management systems and languages, among them the widely used COBOL.

code¹ n. 1. Program instructions. Source code consists of human-readable statements written by a programmer in a programming language. Machine code consists of numerical instructions that the computer can recognize and execute and that were converted from source code. See also data, program. 2. A system of symbols used to convert information from one form to another. A code for converting information in order to conceal it is often called a cipher. 3. One of a set of symbols used to represent information.

code² vb. To write program instructions in a programming language. See also program.

code access security n. A mechanism provided by the runtime whereby managed code is granted permissions by security policy and these permissions are enforced, limiting what operations the code will be allowed to perform. To prevent unintended code paths from exposing a security vulnerability, all callers on the call stack must be

granted the necessary permissions (possibly subject to override by assertion or denial).

codec n. 1. Short for coder/decoder. Hardware that can convert audio or video signals between analog and digital forms. 2. Short for compressor/decompressor. Hardware or software that can compress and uncompress audio or video data. See also compress², uncompress. 3. Hardware that combines the functions of definitions 1 and 2.

code conversion n. 1. The process of translating program instructions from one form into another. Code may be converted at the source-language level (for example, from C to Pascal), at the hardware-platform level (for example, from working on the IBM PC to working on the Apple Macintosh), or at the language level (for example, from source code in C to machine code). See also code¹ (definition 1). 2. The process of transforming data from one representation to another, such as from ASCII to EBCDIC or from two's complement to binary-coded decimal.

Code Division Multiple Access n. A form of multiplexing in which the transmitter encodes the signal, using a pseudo-random sequence that the receiver also knows and can use to decode the received signal. Each different random sequence corresponds to a different communication channel. Motorola uses Code Division Multiple Access for digital cellular phones. Acronym: CDMA. Also called: spread spectrum. See also multiplexing, transmitter.

code page n. In MS-DOS versions 3.3 and later, a table that relates the binary character codes used by a program to keys on the keyboard or to the appearance of characters on the display. Code pages are a means of providing support for character sets and keyboard layouts used in different countries. Devices such as the display and the keyboard can be configured to use a specific code page and to switch from one code page (such as United States) to another (such as Portugal) at the user's request.

code profiler n. A tool designed to aid developers in identifying and eliminating the code inefficiencies that cause bottlenecks and degrade performance in their applications. Code profilers analyze an executing application to determine both how long functions take to execute and how often they are called. Using a code profiler is a repetitive process in that the tool must be reused after each section of inefficient code has been found and corrected.

coder n. See programmer.

Code Red worm n. A fast-spreading and pernicious Internet worm first discovered in mid-2001. The Code Red

digital modem

into the lens of the projection system and thus create a bright, full-color display. Displays can be combined to create high-definition systems of 1920 • 1035 (1,987,200) pixels with 64 million colors. Acronym: DMD.

digital modem n. 1. A communications device that acts as the intermediary between a digital device such as a computer or terminal and a digital communications channel, such as a high-speed network line, an ISDN circuit, or a cable TV system. Although a digital modem supports standard (analog) modem protocols, it is not a "typical" modem in the sense of being a device whose primary function is to modulate (convert digital to analog) before transmission and demodulate (convert analog to digital) after transmission. It uses advanced digital modulation techniques for changing data frames into a format suitable for transmission over a digital line. See also terminal adapter. Compare modem. 2. A 56 Kbps modem. Such a modem is not purely digital but does eliminate the traditional digital-to-analog conversion for downstream transmissions—that is, transmissions moving from the Internet to the end user. A 56 Kbps modem is also digital in that it requires a digital connection, such as T1, between the telephone company and the user's Internet Service Provider (ISP) in order to achieve its highest speed. See also 56-Kbps modem. 3. A term used to distinguish all-digital communications devices, such as ISDN and cable "modems" from the more traditional analog-to-digital, phone-based modems.

Digital Network Architecture n. A multilayered architecture and set of protocol specifications for networks. Designed by the Digital Equipment Corporation, Digital Network Architecture is implemented in the set of products known by the name DECnet. Acronym: DNA. See also DECnet.

digital photography n. Photography by means of a digital camera. Digital photography differs from conventional photography in that a digital camera does not use a silver halide-based film to capture an image. Instead, a digital camera captures and stores each image electronically. See also digital camera.

digital picture frame n. Electronic device used in displaying digital photos and graphics while giving the outward appearance of a traditional picture frame. Digital picture frames allow users to rotate photos within the frame at specified intervals, display a series of photos as a slide show, or use an Internet connection to download photos, order prints, or send customized photo sets to others.

Digital Print Order Format n. See DPOF.

Digital Signature Standard

digital proof n. See direct digital color proof.

digital recording n. The storage of information in binary-encoded (digital) format. Digital recording converts information—text, graphics, sound, or pictures—to strings of 1s and 0s that can be physically represented on a storage medium. Digital recording media include computer disks and tapes, optical (or compact) discs, and ROM cartridges of the type used for some software and many computer games.

Digital Rights Management n. See DRM.

digital satellite system n. A high-powered satellite system with the capability to deliver high-quality transmissions of hundreds of channels directly to television receivers. A DSS broadcast begins as a digital signal sent from a service provider's station to a satellite. From there, it is directed to a satellite dish (typically 18 inches) at the user's premises. The dish next transmits the signal to a converter box, which changes it to an analog signal before sending it to the television set. Acronym: DSS.

Digital Services n. See DS.

digital signal n. A signal, such as one transmitted within or between computers, in which information is represented by discrete states—for example, high and low voltages—rather than by fluctuating levels in a continuous stream, as in an analog signal.

Digital Signal n. See DS.

digital signal processor n. An integrated circuit designed for high-speed data manipulation and used in audio, communications, image manipulation, and other data acquisition and data control applications. Acronym: DSP.

digital signature n. A security mechanism used on the Internet that relies on two keys, one public and one private, that are used to encrypt messages before transmission and to decrypt them on receipt.

Digital Signature Algorithm n. The U.S. government standard for digital signatures, as specified by the National Institute of Standards and Technology, in FIPS 186, Digital Signature Standard. DSA is based on signature encryption based on a public and a private key. Acronym: DSA. See also digital signature.

Digital Signature Standard n. A public key cryptographic standard issued in 1994 by the United States National Institute of Standards and Technology (NIST) to authenticate electronic documents. The DSS uses a Digital Signature Algorithm (DSA) to generate and verify digital

D

FORTRAN

fractal

functionality into limited space. Unlike most other programming languages, Forth uses postfix notation for its mathematical expressions and requires the programmer to work with the program stack directly. See also 4GL, interpreted language, postfix notation, stack, threading.

FORTRAN or Fortran n. Short for formula translation. The first high-level computer language (developed over the period 1954–58 by John Backus) and the progenitor of many key high-level concepts, such as variables, expressions, statements, iterative and conditional statements, separately compiled subroutines, and formatted input/output. FORTRAN is a compiled, structured language. The name indicates its roots in science and engineering, where it is still used heavily, although the language itself has been expanded and improved vastly over the last 35 years to become a language that is useful in any field. See also compiled language, structured programming.

fortune cookie n. A proverb, prediction, joke, or other phrase chosen at random from a collection of such items and output to the screen by a program. Fortune cookies are sometimes displayed at logon and logoff times by UNIX systems.

forum n. A medium provided by an online service or BBS for users to carry on written discussions of a particular topic by posting messages and replying to them. On the Internet, the most widespread forums are the newsgroups in Usenet.

Forum of Incident Response and Security Teams n. See FIRST.

forward vb. In e-mail, to send a received message, either modified or in its entirety, to a new recipient.

forward chaining n. In expert systems, a form of problem solving that starts with a set of rules and a database of facts and works to a conclusion based on facts that match all the premises set forth in the rules. See also expert system. Compare backward chaining.

forward error correction n. In communications, a means of controlling errors by inserting extra (redundant) bits into a stream of data transmitted to another device. The redundant bits are used by the receiving device in detecting and, where possible, correcting errors in the data. See also error-correction coding.

forward pointer n. A pointer in a linked list that contains the address (location) of the next element in the list.

FOSDIC n. Acronym for film optical sensing device for input to computers. A device used by the U.S. government

to read documents on microfilm and store them digitally on magnetic tape or on a disk that can be accessed by a computer.

Fourier transform n. A mathematical method, developed by the French mathematician Jean-Baptiste-Joseph Fourier (1768–1830), for signal processing and signal generation tasks such as spectral analysis and image processing. The Fourier transform converts a signal value that is a function of time, space, or both into a function of frequency. The inverse Fourier transform converts a function of frequencies into a function of time, space, or both. See also fast Fourier transform.

four-nines availability n. The availability of a system 99.99 percent of the time. See high availability.

fourth-generation computer n. See computer.

fourth-generation language n. See 4GL.

fourth normal form n. See normal form (definition 1).

FPD n. See full-page display.

FPGA n. Acronym for Field Programmable Gate Array. A type of programmable logic chip that can be configured for a wide range of specialized applications after manufacture and delivery. FPGAs can be reprogrammed to incorporate innovations and upgrades. Because of their flexibility and adaptability, FPGAs are used in devices from microwave ovens to supercomputers.

FPLA n. See field-programmable logic array.

FPM RAM n. See page mode RAM.

FPU n. Acronym for floating-point unit. A circuit that performs floating-point calculations. See also circuit, floating-point operation.

FQ n. See fair queuing.

fractal n. A word coined by mathematician Benoit Mandelbrot in 1975 to describe a class of shapes characterized by irregularity, but in a way that evokes a pattern. Computer graphics technicians often use fractals to generate naturelike images such as landscapes, clouds, and forests. The distinguishing characteristic of fractals is that they are "self-similar"; any piece of a fractal, when magnified, has the same character as the whole. The standard analogy is that of a coastline, which has a similar structure whether viewed on a local or continental scale. Interestingly, it is often difficult to measure the length of the perimeter of such a shape exactly because the total distance measured depends on the size of the smallest element measured. For example, one could measure on a given coastline the

F

game tree

gated

game tree *n.* A tree structure representing contingencies in a game and used by game developers for design purposes. Each node in a game tree represents a possible position (for example, the configuration of pieces on a chessboard) in the game, and each branching represents a possible move. See also computer game.

gamut *n.* The complete range of colors a display or printer is capable of producing. If a color falls outside the gamut of a device, it cannot be accurately displayed or printed from that device.

gamut alarm *n.* A feature in graphics programs that alerts the user if a chosen color will fall outside the currently selected gamut. See also gamut.

Gantt chart *n.* A bar chart that shows individual parts of a project as bars against a horizontal time scale. Gantt charts are used as a project-planning tool for developing schedules. Most project-planning software can produce Gantt charts.

gap *n.* See inter-record gap.

garbage *n.* 1. Incorrect or corrupted data. 2. Gibberish displayed on screen, either due to faulty hardware or software or because a program is unable to display a file's content. For example, an executable file is not meant to be displayed by a text editor and so is indecipherable on screen.

garbage collection *n.* A process for automatic recovery of heap memory. Blocks of memory that had been allocated but are no longer in use are freed, and blocks of memory still in use may be moved to consolidate the free memory into larger blocks. Some programming languages require the programmer to handle garbage collection. Others, such as Java, perform this task for the programmer. See also heap (definition 1).

garbage in, garbage out *n.* A computing axiom meaning that if the data put into a process is incorrect, the data output by the process will also be incorrect. Acronym: GIGO.

gas-discharge display *n.* A type of flat-panel display, used on some portable computers, containing neon between a horizontal and a vertical set of electrodes. When one electrode in each set is charged, the neon glows (as in a neon lamp) where the two electrodes intersect, representing a pixel. Also called: gas-plasma display. See also flat-panel display, pixel.

gas-plasma display *n.* See gas-discharge display.

gate *n.* 1. An electronic switch that is the elementary component of a digital circuit. It produces an electrical output signal that represents a binary 1 or 0 and is related to the states of one or more input signals by an operation of Boolean logic, such as AND, OR, or NOT. Also called: logic gate. See also gate array. 2. The input terminal of a field-effect transistor (FET). Also called: gate electrode. See also drain (definition 1), FET, MOSFET, source (definition 2). 3. A data structure used by 80386 and higher microprocessors to control access to privileged functions, to change data segments, or to switch tasks.

gate array *n.* A special type of chip that starts out as a nonspecific collection of logic gates. Late in the manufacturing process, a layer is added to connect the gates for a specific function. By changing the pattern of connections, the manufacturer can make the chip suitable for many needs. This process is very popular because it saves both design and manufacturing time. The drawback is that much of the chip goes unused. Also called: application-specific integrated circuit, logic array.

gated *adj.* 1. Transmitted through a gate to a subsequent electronic logic element. 2. Transmitted through a gateway to a subsequent network or service. For example, a mailing list on BITNET may be gated to a newsgroup on the Internet.

gate electrode *n.* See gate (definition 2).

gateway *n.* A device that connects networks using different communications protocols so that information can be passed from one to the other. A gateway both transfers information and converts it to a form compatible with the protocols used by the receiving network. Compare bridge.

gateway page *n.* See doorway page.

gating circuit *n.* An electronic switch whose output is either on or off, depending on the state of two or more inputs. For example, a gating circuit may be used to pass or not pass an input signal, depending on the states of one or more control signals. A gating circuit can be constructed from one or more logic gates. See also gate (definition 1).

gated *vb.* To have been the victim of a hijackware program that seized control of an Internet shopping or surfing experience and caused the victim's browser to display ads and Web sites chosen by the program. Users may be